# METHOD AND APPARATUS FOR UTILIZING TICKETS TO PROGRESS GAME PLAY IN A GAMING MACHINE

## FIELD OF THE INVENTION

The present invention relates to gaming machines and, more particularly, to the use of game assets stored on data storage media that can alter the game play characteristics of a game when entered into the gaming machine.

## BACKGROUND OF THE INVENTION

Gaming machines, such as slot machines, video poker machines and the like, are the cornerstone of the gaming industry. The popularity of gaming machines with players is dependent on the likelihood (or perceived likelihood) of winning money at the machine and the intrinsic entertainment value of the machine compared with other available gaming options. Players are attracted to the most entertaining machines when the available gaming options include many competing machines, and the expectation of winning at each machine are roughly the same, (or believed to be the same). Accordingly, in the gaming industry, there is a continuing need for gaming machine manufacturers to produce new and more entertaining types of games.

To meet this need, wagering games continue to evolve and become increasingly more sophisticated. Gaming machines have been enhanced with games that provide a story line that evolves with game play. These episodic games provide an intricate relationship between the player's progress in the game and the awards available to the player. The player is generally allowed to interact with these games to affect the story line of the game. One mechanism for allowing this interaction is to give a player a tool, i.e., a game asset. Game assets are tools that enable a player to enhance their probability of winning an award or of winning an enhanced award. These game assets generally must be used in the game session or they are lost.

Many unsophisticated games exist in which game assets are acquired and register on the gaming machine. When players break off their gaming session, they lose these game assets. Some players look for gaming machines with abandoned game assets and opportunistically take possession of these gaming machines -- acquiring game assets that they have not earned.

To prevent this opportunistic behavior and to reward players who have earned their game assets, a method is needed to allow players to store game assets whenever they decide to end their gaming session.

## SUMMARY OF THE INVENTION

The present invention overcomes the problem associated with players losing game assets at the end of a gaming session. Instead of losing assets, a player is allowed to retain game assets earned during game play on a data storage medium for use in future gaming sessions. A game play asset is a tool that, when implemented, gives the player an advantage for winning an award or for acquiring a larger award. Game assets may also include partial game play asset tickets that when collected in the entire set, can be redeemed for the game asset.

In one embodiment, the data medium on which a game asset is stored is a paper ticket. Paper tickets may be encoded with a game asset indicium using ticket printers commonly found on gaming machines. Ticket printers are normally used in cashless gaming systems to encode tickets with a monetary value.

The player receives the asset ticket during, or at the end of the player's gaming session. The asset ticket may be used in the next gaming session, or, depending on the game design, used in the same gaming session at the player's discretion. The player inserts the ticket into the gaming machine's bill validator to redeem the game asset. The bill validator reads the ticket, and configures the gaming machine according to the game asset data stored on the ticket.

## BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other advantages of the invention will become apparent upon reading the following detailed description and upon reference to the drawings in which:

FIG. 1 is a perspective view of an electomechanical gaming machine;

FIG. 2 is a block diagram of the electronic components typically used in the electromechanical gaming machine of FIG. 1;

FIG. 3 is a perspective view of an electronic video gaming machine;

FIG. 4 is a block diagram of the electronic components typically used in the electronic gaming machine of FIG. 3;

FIG. 5 illustrates gaming machines networked to a central computer system;

FIG. 6 is a perspective view of a basic slot-type gaming machine having a bonus game with discrete game award levels;

FIG. 7 is a game asset ticket for the game shown in FIG. 6;

FIG. 8 is a perspective view of a gaming machine having an episodic bonus game displaying a lower-level bonus game episode;

FIG. 9 is the bonus game of FIG. 8 displaying the available bonus awards in the lower-level bonus game episode;

FIG. 10 is a perspective view of the gaming machine shown in FIG. 8 displaying a higher-level bonus game episode;

FIG. 11 is a bonus game of FIG. 10 displaying available bonus awards in the higher-level bonus game episode;

FIG. 12 is the game asset ticket associated with the game shown in FIG. 10;

FIG. 13 is an electronic video gaming machine with a bonus game;

FIG. 14 is the bonus game of FIG. 13; and

FIG. 15 is the game asset ticket associated with the game shown in FIG. 14.

Note: Several of the drawings contain the MONOPOLY trademark, which is a registered trademark, owned by Hasbro, Inc.

While the invention is susceptible to various modifications and alternative forms, specific embodiments have been shown by way of example in the drawings and will be described in detail herein. It should be understood, however, that the invention is not intended to be limited to the particular forms disclosed. The invention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

## DESCRIPTION OF SPECIFIC EMBODIMENTS

Turning to FIG. 1, a typical gaming machine 20 used by gaming establishments is illustrated. The gaming machine 20 may be any type of gaming machine and may have varying structures and methods of operation. For example, the

gaming machine shown in FIG. 1 is an electromechanical gaming machine 21 with mechanical reels 26 to display slot-type wagering games. The gaming machine shown in FIG. 3 is an electronic video gaming machine 19 having a video display 16 that may present keno, bingo, poker, or slot-type waging games.

Usually, and specifically with respect to slot-type gaming machines, winning game outcomes are winning symbol combinations formed from discrete symbols shown either on the mechanical reels 26 or on the video display 16. Winning symbol combinations result in a monetary award (such as currency, chips, or credits). A pay table identifies the award associated with each winning symbol combination.

For both the electromechanical 21 and electronic video gaming machines 19, in addition to the base game 32, a bonus game 30 may be presented to the player. Typically, predetermined outcomes in the base game 32 triggers the bonus game 30. The bonus game 30 is typically played in the top box of the gaming machine. A top box bonus game 30 is illustrated in FIG. 1 and FIG. 3. The top box is generally the area above the base game 32 and usually has a separate video display to display the bonus game 30. The bonus game 30 is not necessarily in the top box of the gaming machine, but may be incorporated in the base game.

Many different gaming machines 20 can be designed including various combinations of base games 32 and bonus games 30 implemented with both electronic and electromechanical components. Components typically found in gaming machines 20 are described below. It should be understood that other components and peripheral devices exist that may be used in any number of combinations to create a variety of gaming machine types.

One of the most important components of any gaming machine 20 is the display to show the player the game outcome. Electromechanical gaming machine 21 use mechanical reels 26 to display game outcomes. Stepper motors 25 spin the mechanical reels 26 and stop them in a predetermined position to display the game outcome. Electronic video gaming machines 19 simulate the mechanical reels 26 of an electromechanical gaming machine 21 on a video display 16. The video display 16 may be a cathode ray tube (CRT), a LCD, a plasma display, a LED, or any other type of video display suitable for use in a gaming machine.

The video display 16 may include a touch sensitive screen 17 that allows players to touch the screen to make game selections. A push button panel 22 is also typically offered on both electromechanical 21 and video gaming machines 19 to allow players to make gaming selections.

Many gaming machines 20 are also equipped with a player-tracking card reader 24. Players may be enrolled in the gaming establishment's player club and are eligible for discounts and complimentary services as they collect points on their player-tracking account. The player inserts a player-tracking card into the player-tracking card reader 24, which allows the gaming establishment's player-tracking computer to register that player's wagering activity at that gaming machine 20. A player-tracking display 27 provides a communication link between the player and a central host computer 10a serving the player-tracking system. The player may interact with the player-tracking system using the associated display and keypad.

Wagers are made through either a coin slot acceptor 28 or a bill validator 29. The bill validator 29 can accept either paper currency or cashless ticket vouchers. The bill validator 29 reads the currency or the ticket voucher and applies the value read as credits playable on the gaming machine 20.

A cashless ticket voucher is created by a ticket printer 23 commonly found on gaming machines 20. The ticket printer 21 is used to print or otherwise encode cashless ticket vouchers with a monetary value, generally using a bar code. The ticket printer 23 is used with cashless gaming systems, and allows a player to receive a ticket voucher instead of currency when a player cashes out of the gaming machine 20.

The ticket voucher may be taken to a cashier and redeemed for cash. Alternately, the player may insert the ticket voucher into the bill validator 29 of a cashless equipped gaming machine 20. If inserted into the bill validator 29, the gaming machine reads the bar code on the ticket voucher and transfers the monetary value encoded on the ticket to the gaming machine. For security purposes, the ticket voucher is retained inside the gaming machine 20.

The push button panel 22, player-tracking card reader 24, stepper motors 25, bill validator 29, ticket printer 23, video display 16, and various other components of a gaming machine 20 are controlled by a central processing unit (CPU) 18 (such as a

microprocessor or microcontroller) as shown in FIG. 2 and FIG. 4. FIG. 2 and FIG. 4 show only a few of the peripheral devices typically included in gaming machines 20.

In addition to controlling peripheral devices, the CPU 18 operates to execute a game program stored in system memory 12. The system memory 12 contains control software, operational instructions, and operational data associated with the gaming machine 20. The system memory 12 may comprise a battery-backed volatile memory 13 (e.g., a random-access memory (RAM)) and a non-volatile memory 14 (such as an EEPROM).

The CPU 18 uses a random number generator with a probability table to select a game outcome (e.g., a "base" game outcome). This game outcome corresponds to a particular set of discrete reel "stop positions." At least one random number is associated with each possible stop position on the reels. The random number generated is used to look up the corresponding reel stop position in the probability table. In an electromechanical gaming machine 21, the CPU 18 commands the stepper motors 25 that drive each of the reels to stop at the appropriate stop position. The discrete symbols on the reels graphically illustrate the stop positions and show whether the stop positions of the reels represent a winning game outcome. The electronic video gaming machines 19 operate similarly except the CPU 18 signals the video graphics controller to display the randomly determined game outcome on the video display 16.

The CPU 18 also has an input/output (I/O) bus 15 that allows the CPU to communicate with and control the gaming machine's peripheral devices. Two of the peripheral devices that the CPU 18 communicates with are the bill validator 29 and ticket printer 23.

These communication links are normally used to exchange cashless ticket voucher information between the CPU 18 and either the bill validator 29 or the ticket printer 23. In one embodiment of the present invention, these devices may also be used to transmit data to the CPU 18 that enables specific subroutines to implement the game play assets held by a player.

The game play assets are stored on a data storage medium – for example, a game asset ticket 40. The asset ticket 40 is issued to the player from the ticket printer 23 when the player achieves a predetermined game outcome.

Game asset tickets 40 are similar to cashless ticket vouchers printed by the ticket printer 23. A cashless ticket voucher has a bar code printed on the ticket 40 that is readable with a standard bill validator 29. A ticket voucher uses the bar code as a validation number for the cashless ticket. The bar code can contain a maximum of 18 numeric digits, each 0-9, and does not contain any other characters.

Similarly, a game asset ticket 40 can be encoded with an available game play asset. Rather than containing a validation number, a game asset indicium 41 is encoded on the asset ticket 40 as shown in FIG. 7. The game asset indicium 41 identifies a game asset that the CPU 18 may implement, e.g., in the form of a subroutine that the game program can call up. The game asset indicium, in addition to identifying the game asset, may also contain a validation number to prevent the fraudulent use of the game asset ticket.

In addition to bar coding 41, the game asset ticket 40 may contain printed information about the gaming machine, the game on which the ticket was issued, and the identification of the game asset itself. For example, the printed information may show the type of game, game location, game asset stored to give the player sufficient information to enable the player to return to the appropriate gaming machine and continue play.

The bill validator 29 is programmed to read and accept information from game asset tickets. The asset ticket 40 can be fed into the bill validator 29 in the same manner as the cashless ticket voucher. The bill validator 29 reads the asset ticket 40 and transmits the information to the game machine's CPU 18. The CPU 18 recognizes and differentiates the asset ticket 40 from a cashless ticket voucher based on the game asset indicium 41. Software in the CPU 18 automatically implements the appropriate subroutines in the game program to affect the game play characteristics represented by the game asset. Similar to the cashless ticket voucher, the bill validator 29 also captures the game asset ticket 40 for accounting purposes and to prevent the reuse of the ticket.

The information read by the bill validator 29 may also be communicated to a host computer 10b for security purposes. Gaming machines 20 in a typical gaming establishment are in serial communication with at least one host computer 10 through a computer network in a master-slave communication protocol as shown in FIG. 5.

Gaming machines are often grouped in banks and are networked together with a carousel controller 33. The carousel controller 33 in turn communicates through a router 36 to send data to a host computer 10. A serial poller 34 may also be present in the network to facilitate communication. Each host computer 10 is generally dedicated to a specific gaming machine function and gathers information relating to that function from each gaming machine 20. Gaming functions may include accounting, player-tracking, progressive game controls, and cashless gaming. For example, a host computer 10 may gather cashless gaming data from each gaming machine.

If the gaming machine is connected to a central computer system, when the asset ticket 40 is issued, the ticket data is transmitted to a host computer 10b to maintain the security of the asset ticket 40. When the asset ticket is proffered to the gaming machine 20, the gaming machine transmits the redemption request to the host computer 10b to verify and validate the ticket. If the ticket has not been previously used and is valid, the host computer 10b instructs the gaming machine 20 to accept the ticket 40. With this system architecture, the asset ticket 40 may only require that the game asset indicium 41 be a unique identification number.

When the player returns to the gaming machine 20 and inserts the asset ticket 40 into the bill validator 29, the identification number on the ticket is communicated to the host computer 10b. The host computer 10b uses the game asset indicium 41 to retrieve an associated data record. This data record contains all necessary information to identify the gaming machine 20 and the asset awarded to the player. The host computer 10b may subsequently signal the gaming machine 20 to give the player the game asset recorded on the ticket. The game asset indicium 41 may also include a validation number that the host computer verifies before activating the game asset.

Alternately, if the gaming machine 20 is not networked to a host computer 10b dedicated to providing game asset verification and implementation, all processing related to the asset ticket 40 is done within the gaming machine 20. Although the game asset indicium 41 could directly link to a subroutine to implement the game asset, using a database approach similar to the central computer system is also possible. Every possible gaming machine asset, and combination of assets, may be listed in a database in the system memory 12 of the gaming machine 20. The game

asset indicium 41 identifies a specific data record that allows a gaming machine to implement a specific subroutine to give a player the corresponding game asset acquired.

The flexibility of the database methodology becomes apparent when combinations of game asset tickets 40 are entered into the gaming machine 20. The gaming machine 20 first locates the data record corresponding to the game asset combination. Alternately, several game assets may be encoded on a single asset ticket with a single game asset indicium. In either case, all possible combinations of game asset tickets 40 could be contained in the database and identified by a single game asset indicium 41. The game asset indicium 41 determines the appropriate subroutine to implement to achieve game play characteristics associated with the combination of game assets.

For gaming machines 20 that are not connected to a host computer 10b, the gaming machine itself may provide security measures to prevent use of fraudulent asset tickets. For security purposes, the game asset ticket 40 can be encoded with a validation number that allows the gaming machine 20, or the central computer system to which it is connected, to verify that the asset ticket is valid and has not been previously used. For example, the gaming machine 20 may print a unique security indicium separate from the game asset indicium 41 on the ticket 40, or the security indicium might be part of the game asset indicium 41. This security indicium is also stored in the system memory 12 of the gaming machine 20 at the time the ticket is issued. This allows the gaming machine 20 to match the asset ticket 40 when it is presented to the gaming machine 20. When the security indicium on the asset ticket 40 matches the security indicium stored in the gaming machine's database, the validity of the game asset ticket 40 is verified and the game asset is awarded to the player. The gaming machine 20 may be programmed to accept an asset ticket 40 with this unique identifier only once preventing the use of duplicate tickets. Once used, the security indicium is marked as used and is never used again by the gaming machine 20 to preclude reuse of the same or a facsimile ticket.

The problem with using each gaming machine 20 individually and independently to provide security for game asset tickets is that a player must always return to the same gaming machine to redeem a game asset. To some extent, this

detriment can be alleviated if a bank of gaming machines is controlled by a carousel controller 33 that can perform the security function for each of the individual gaming machines 20 in the carousel bank. Then the player could return with his game asset ticket 40 and play any of the gaming machines 20 in the bank controlled by the same carousel controller 33.

The purpose of this technology is to give a player a game asset that gives the player an advantage in the game and which can be implemented at a later time. Because the game assets are recorded in a tangible form, game assets can be used at the player's discretion - in either the same or another gaming session, and either on the same machine or on any gaming machine that operates the same game program. Furthermore, because each game play asset can be in a separate tangible form, the player may, depending on the game design, have the option of using these assets separately or in combination. Game assets may be used either in a base game 32, a bonus game 30, or in both a base and bonus game. Furthermore, the game assets may be earned in either the base game 32 or the bonus game 30 and used in any combination for either the base or the bonus game.

In one embodiment, the player's eligibility for a game asset is printed on an asset ticket 40 at the end of the gaming session when the player cashes out of the gaming machine 20 for use in a future gaming session. Alternatively, the game may be designed to give the player the game asset ticket 40 immediately on acquiring the game asset during the gaming session for use in the current gaming session, or at the player's discretion, in a future gaming session.

Game assets fall into two broad categories: game enhancing tools or award enhancing tools. In a slot-type gaming machine, for example, game enhancing tools might include: paying right to left pay lines, riding a random additional pay line, providing a nudge, and re-spinning one or more reels. Game enhancing tools help a player attain a winning game outcome. For example, in response to a predetermined game outcome, a player may be awarded a "sevens are wild" game asset ticket. The player may use this game asset anytime during game play to achieve the winning outcome. To enhance the game play strategy, a player may be allowed to tender the ticket after the initial game outcome has been displayed but before the final game outcome.

In contrast, award enhancing tools act directly on an award won by the player. Examples of award enhancing tools include award multipliers and additional credits for specific game outcomes. Game asset tickets that enhance an award may be required to be tendered before the final game outcome is displayed.

The game asset itself may take many forms. For example, the game asset may retain the highest award level achieved by the player. The award level may progressively grow as the player successfully participates in each successive gaming session. This embodiment is illustrated in FIG. 12 in which a player may become eligible for a progressively increasing bonus award based on play in the base game 32. A base slot game 32 is shown with a bonus game 30. Predetermined outcomes in the base game 32 increase the awards available in the bonus game 30. Each time a start-bonus outcome occurs, the player has a chance of winning the current bonus award.

When a player does not win the bonus award and must cash out of the gaming machine 20, the gaming machine may issue a game asset ticket 40 showing the bonus award level at the time the player cashed out. This asset ticket 40 is shown in FIG. 12 and shows the bonus level for which the player is eligible. If the player uses the game asset ticket 40 in the next gaming session, the gaming machine 20 will implement the corresponding bonus award level shown by the asset ticket, and the player will be immediately eligible for that bonus award.

Another variation of this embodiment includes a series of progressive game segments, each game segment furthering the progress of the game and each having its own associated awards. The gaming machine shown in FIG. 8 illustrates this embodiment. This game is a typical gaming machine 20 with a slot type base game 32 and a top box bonus game 30. Certain winning combinations of the base slot game 32 make a player eligible to win the top box bonus game 30. The top box bonus game 30 comprises a series of game segments that are sequentially played, as the player becomes eligible for each game segment. In this example, there are three game segments: the Straw House bonus, the Stick House bonus, and the Brick House bonus. Each of these game segments is successive. When a player finishes the Straw House bonus segment, the next time the player triggers a bonus, the game will begin the Stick House bonus segment. The player becomes eligible through the base game 32 to play each of these bonus games 30. The awards for winning each of the bonus games

30 escalate as the player progresses through the sequence of bonus games. For example, as shown in FIG. 9 and FIG. 11 the Brick House bonus game has higher bonus award levels than the Stick House bonus game. In one embodiment, the player is unable to continue to the next bonus game until the previous bonus game is successfully completed.

In the event the player is unable to complete all of the game segments in one gaming session, the player may opt to cash out of the gaming machine 20. In this example, if the player has won Stick House bonus game, the player will receive an asset ticket 40 as shown in FIG. 12 that shows that the player will be immediately eligible for the Brick House game segment. In this embodiment, the asset ticket records the game segment that the player is eligible to play.

The game asset tickets 40 may also be collected to give a player a game asset that is not obtainable without collecting the entire set of asset tickets. These game asset tickets represent partial milestones to obtaining a larger award or a tool making it easier for a player to obtain an award. A partially acquired set may have some value.

For example, a single game asset ticket may be worth a number of credits. If the player, however, collects the entire set of coordinating assets, the entire set may be worth multiple times its original face value. In addition, the entire set could enhance the player's status in the game by providing a more powerful strategic position in the game, potentially making a winning outcome more probable. Consequently, the collection of an entire set of game asset tickets could enhance the player's outcome, both with respect to awards and with respect to the overall game outcome.

An example of a base and bonus game using this collection concept is shown in FIG. 13. In this example, the base game 32 is a typical slot-type gaming machine with a MONOPOLY top box bonus game 30. The player may acquire properties during bonus game play. Collecting a set of properties pays an award and improves the player's strategic position to win the overall game.

In addition to collecting properties, the player can obtain other tools that progress game play such as asset tickets that are the equivalent of MONOPOLY "community chest" and "chance" cards. These game asset tickets may be proffered to the gaming machine to affect game outcomes.

Because play of the MONOPOLY game may take a considerable amount of time, the player may cash out of the game and receive the game assets acquired during the game session. An asset ticket 40 may be issued for every game asset collected during the game. For example, a separate game asset ticket may be produced for each property collected during the gaming session. Alternately, a single asset ticket 40 could be issued for all properties collected during the game as shown in FIG. 15.

Game asset tickets 40 can be used together or in combination. Inserting the game asset tickets 40 into the gaming machine's bill validator 29 allows a player to immediately take possession of the acquired properties. Inserting the asset ticket 40 of FIG. 15 into the gaming machine 20 of FIG. 13 allows the player to immediately claim the properties shown in FIG. 14. Any enhancement to game play by virtue of the possession of these properties is available to the player.

Although the previous examples demonstrate the application of the present invention through a base game 32 and bonus game 30, the present invention can also be used solely in a base game – whether it is embodied in an electromechanical 21 or electronic video gaming machine 19. For example, a standard electromechanical slot-type gaming machine 21 may award asset tickets 40 as they are won. The player may collect the ticket and subsequently use that ticket in any further gaming activity on that machine at the player's discretion.

This technique of collecting game assets and using them at the player's discretion during game play can also be extended to gaming machines with top box bonus games. Additional game asset tickets 40 during play of the base 32 or bonus game 30 may be used during the bonus game. For example, certain tools or implements may be necessary to fully access all of the potential bonus awards available in the bonus game. These game assets may also represent tools that the player needs for a winning game outcome. In the context of the MONOPOLY game described above, these game asset tools may include a "free turn" or "get out of jail free." A partial collection of these game assets may create a superior opportunity to win a bonus game award.

Different game assets may have different effects on game play and the player solely decides whether to play less than all the acquired game asset tickets or all of the acquired game asset tickets. The player may even decide to play a portion of the game

asset tickets he has acquired, and to add additional remaining game asset tickets during play of the game.

While the present invention has been described with reference to one or more particular embodiments, those skilled in the art will recognize that many changes may be made thereto without departing from the spirit and scope of the present invention. For example, in an alternate embodiment, rather than using the bill validator/ticket printer, the same functionality could be obtained by using the player-tracking card/player-tracking reader to exchange information between the gaming machine and the player. The player-tracking reader is capable of both reading and writing to the player-tracking card. The CPU 18 is in communication with the player-tracker reader through the I/O bus 15. Consequently, the CPU 18 can receive the game indicium encoded on the player-tracking card from the player-tracking reader.

Each of these embodiments and obvious alternative variations are contemplated as falling within the spirit and scope of the claimed invention, which is set forth in the following claims.